

Application No.: 10/727072

Case No.: 59416US002

Amendments to the Specification:

Please amend the specification as follows:

Please replace the paragraph on page 12, lines 15-28 with the following amended paragraph:

Still another approach of improving the efficiency of PLEDs is to configure the LED, phosphor layer, and LP reflector such that at least some of the UV light from the LED is reflected by the LP reflector directly onto the top (viewing) surface of the phosphor layer, rather than directing all of the UV light onto the bottom surface of the phosphor layer. FIG. 9 shows such a PLED 80. The heat sink 14' has been modified from above embodiments so that the LED 12 and the phosphor layer 82 can be mounted generally co-planar. An SP reflector 84 is shown underneath the phosphor layer, but in many cases will not be required. This is because LP reflector 86, which has been embossed in the form of a concave ellipsoid or similar shape, directs UV excitation light directly from the LED onto the upper surface of phosphor layer 82, which surface faces the front of PLED 80. The LED and phosphor layer are preferably disposed at the foci of the ellipsoid. The visible light emitted by the phosphor layer is transmitted by LP reflector 86 and collected by the rounded front end of the PLED body to form the desired pattern or visible (preferably white) light.

Please replace the paragraph on page 26, lines 1-3 with the following amended paragraph:

As shown in the PLED construction 310 of FIG. 14, the outer region 325 thickness can be greater than the inner region 323 thickness. The above arrangement can be disposed within an optically transparent material 320.

Please replace the paragraph on page 27, lines 15-24 with the following amended paragraph:

FIG. 16 is a schematic sectional view of another embodiment of a PLED construction 510. A first non-planar multilayer reflector 524 is shown spaced away from a layer of phosphor material 522, however the first non-planar multilayer reflector 524 need only be positioned such that light can travel between

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the layer of phosphor material 522 and the first non-planar multilayer reflector 524. The first non-planar multilayer reflector 524 reflects LED 512 excitation light ~~excitation light~~ such as, for example UV, or blue light and transmits visible light. This first non-planar multilayer reflector 524 can be referred to as a long-pass (LP) reflector, as described above. The above arrangement can be disposed within an optically transparent material 520.

Please replace the paragraph on page 28, lines 6-14 with the following amended paragraph:

FIG.17 is a schematic sectional view of another embodiment of a PLED construction 610. A first non-planar multilayer reflector 624 is shown adjacent a layer of phosphor material 622, however the first non-planar multilayer reflector 624 need only be positioned such that light can travel between the layer of phosphor material 622 and the first non-planar multilayer reflector 624. The first non-planar multilayer reflector 624 reflects LED 612 excitation light ~~excitation light~~ such as, for example UV, or blue light and transmits visible light. This first non-planar multilayer reflector 624 can be referred to as a long-pass (LP) reflector, as described above. The above arrangement can be disposed within an optically transparent material 620.

Please replace the paragraph on page 29, lines 12-23 with the following amended paragraph:

The phosphor layer 722 can be located at any position within or on a surface 720 of the optically transparent body 718. For example, the phosphor layer 722 can be disposed adjacent the LED 712 as shown in FIG. 18. In another illustrative embodiment, the phosphor layer 822 can be spaced apart from the LED 812 as shown in PLED construction 810 of FIG 19. In another illustrative embodiment, the phosphor layer 922 can be disposed within or on the entire optically transparent body 918 as shown in PLED construction 910 of FIG. 20. In another illustrative embodiment, the phosphor layer 1022 can be disposed on or in the optically transparent body 1018 such that the phosphor layer 1022 has a greater thickness or density at normal angles of incident from the LED 1012 and

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decreasing in thickness or density as the angles of incident from the LED 1012 become greater. Thus, the phosphor layer 1022 can have a volume density gradient, and/or a surface area density gradient as a function of LED 1012 incident angle as shown in PLED construction 1010 of FIG. 21.